Best Management Practices For Dental Offices In New Hampshire

Tips For Reducing Hazardous, Universal, and Solid Wastes

Prepared by
New Hampshire Department of Environmental Services
Pollution Prevention Program
and the
New Hampshire Dental Society

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

NEW HAMPSHIRE DENTAL SOCIETY
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Best Management Practices For Dental Offices In New Hampshire

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Introduction and Acknowledgements

The Department of Environmental Services (DES), Pollution Prevention Program (NHPPP) received a Pollution Prevention Incentives for States (PPIS) grant to work with New Hampshire's dentists to promote good waste management techniques and to reduce hazardous wastes. This publication was paid for in part by a grant from EPA Region 1.

We thank the New Hampshire Dental Society (NHDS) for assisting NHPPP in every phase of the NH Dental Project. The partnership between DES and NHDS (the partnership) has helped to promote the proper management and recycling of mercury-containing wastes and x-ray wastes in dental offices (including compliance with environmental laws and regulations) and encourage the use of non-mercury amalgams.

NHPPP would also like to express our thanks to the National Wildlife Federation's Northeast Natural Resource Center and to the Vermont Dental Society for permission to draw on their guide "The Environmentally Responsible Dental Office: A Guide to Proper Waste Management in Dental Offices" as a foundation for this document. The laminated inserts are intended to be a "quick reference" guide to dental wastes. These can be posted on bulletin boards, cabinets, or walls for dental hygienists and office staff.

In May 2001, a mercury reduction survey was included in the NHDS newsletter. This survey was sent to approximately 950 NH dentists. As of June 1, NHPPP received 395 completed surveys. The partnership evaluated the level of awareness and degree of mercury amalgam use, recycling, and disposal among NH dentists. The survey data has been complied and analyzed to determine the best method of outreach for the partnership to use. This document reflects the summarized survey results.

A Suggestion

The information provided in this document is intended to give only a very basic idea of the rules, regulations, and management options which must be considered by dental offices in order to be in compliance with applicable state and federal regulations. While every attempt has been made to make this document accurate and comprehensive, the fact remains that its format requires some information to be excluded and simplified. We strongly urge you to contact the appropriate DES program to provide copies of the actual rules and regulations referred to in this document to insure that you are in compliance.

An "official" hard copy of all NHDES-related rules may be obtained from the NHDES Public Information and Permitting Office at (603) 271-2975 or by visiting http://www.des.state.nh.us.

Notification Requirements

All generators of hazardous waste in New Hampshire must have an EPA ID number. To obtain an ID number, fill out a Hazardous Waste Activity Notification Form, and return it to RIMS or call DES's Reporting Information and Management Section (RIMS) office for a temporary ID number. For more information contact (603) 271-2921 or (603) 271-2901.

The notification form must be processed prior to conducting hazardous waste activity. You are also required to use this form to notify DES of any changes to your original notification, i.e. company name, street address of generating site, company ownership, property ownership, type and description of regulated activity and estimated quantity of waste generated.

A Hazardous Waste Activity Notification Form is a legal document used to notify DES of a company's hazardous waste activity or to update information that DES has on file for a company.

Dental office waste may include amalgam from fillings, lead foils from shields, and silver from x-ray solutions which fall under precious metals rule or if they are sent for recycle.

Env-808.01 Precious Metals: "Recyclable materials utilized for precious metal recovery" means recyclable materials that are reclaimed to recover economically significant amounts of gold, silver, platinum, palladium, irradium, rhodium, ruthenium, or any combination of these.

Env-808.02 Generator Requirements: Persons who generate recyclable materials that are regulated under Env-Wm 808 shall be subject to the following DES requirements:

a) Notification requirements of Env-Wm #500 (requirements for hazardous waste generators) and
b) Manifest requirements of Env-Wm 500.

What is Pollution Prevention?

Pollution Prevention (P2) means the use of materials, processes, or practices that reduce or eliminate the creation of pollutants or wastes at the source, or minimize their release into the environment prior to recycling, treatment, or disposal. Stated more simply, P2 avoids or minimizes generation of waste from the start. P2 also avoids the transfer of pollutants or wastes from one medium (such as air, water or land) to another.

The benefits of pollution prevention in the dental offices and elsewhere are many. They include but are not limited to:

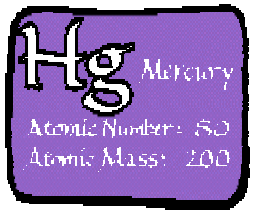
- Lowered waste management and disposal costs
- Reduced chemical purchases
- Enhanced company image
- Lower liability risks
- Healthier work place

Wastes from dental offices may include such toxics as amalgam scrap containing mercury and silver, scrap from zinc-based cements, x-ray fixer solution containing silver, and x-ray developer.

Section I

Hazardous Wastes in the Dental Office

Mercury



Mercury is highly toxic to humans and wildlife. It accumulates in the tissues of fish and other organisms inhabiting mercury-contaminated waters and builds up in the tissues of organisms higher up the food chain, including humans. In humans, mercury is toxic to the nervous system, affecting the brain, spinal cord, kidneys and liver. Mercury exposure is particularly significant for young children and pregnant women because mercury inhibits the development of the brain and the nervous system. Lowered cognitive abilities, impaired hearing, and poor coordination are some of the effects seen in children with elevated mercury exposure.

Mercury also adversely affects wildlife. Eagles, osprey, common loons, river otters, mink, and other fish-eating animals may suffer premature death, weight loss, difficulties reproducing, and other problems as a result of eating mercury-contaminated fish.

Silver

Silver is usually recovered from silver ores by roasting the ore in a furnace to convert the sulfides to sulfates and then chemically precipitating metallic silver. Several metallurgical processes are used to extract silver from ores of other metals. In the *amalgamation* process, liquid mercury, which forms an amalgam with the silver, is added to the crushed ore. After the amalgam is washed out of the ore, the mercury is removed by distillation, leaving metallic silver. In *lixiviation* methods the silver is dissolved in a solution of a salt, usually sodium cyanide, after which metallic silver is precipitated by bringing the solution in contact with metallic zinc or aluminum.

Lead

Lead taken internally in any of its forms is highly toxic; the effects are usually felt after it has accumulated in the body over a period of time. The symptoms of lead poisoning are anemia, weakness, constipation, colic, palsy, and often a paralysis of the wrists and ankles. Flaking lead-based paints and toys made from lead compounds are considered serious hazards for children. Children are especially at hazard from lead, even at levels once thought safe. Lead can reduce intelligence, delay motor development, impair memory, and cause hearing problems and troubles in balance. In adults, one lead hazard at levels once thought safe is that of increased blood pressure. Present-day treatment of lead poisoning includes the administration of calcium disodium ethylenediaminetetraacidic acid, or EDTA, a chelating agent; lead is removed from the body by displacing the calcium in EDTA and forming a stable complex that is excreted in the urine.

Section II
Recommended Dental Office Waste Handling Procedures

Amalgam (Containing Mercury and Silver)

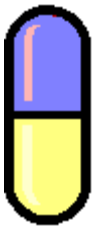
- Use amalgam substitutes (plastic or porcelin composites) where they are appropriate, ethical, and economically feasible.
- Convert to single use amalgam capsules. This change will help to minimize the chance of an accidental mercury spill.
- Recycle as much amalgam as possible. Place all scrap amalgam in containers labeled "WASTE AMALGAM" for recycling.
- Mercury spill kits are available from a number of sources, including: companies that specialize in Occupational Safety and Health Administration (OSHA) compliance supplies and equipment, amalgam recyclers, and dental product suppliers. Before purchasing a kit, make sure it comes with complete instructions on how to perform a spill clean-up. Train several staff members in proper spill clean-up procedures.
- DO NOT put scrap amalgam in the sharps container or where it will end up in the red biohazard bag.
- DO NOT discard scrap amalgam down the drain. Mercury and amalgam particles should be kept out of the drain and trash. They should be collected and stored in airtight containers, and recycled to the maximum extent possible.
- DO NOT remove excess amalgam from the amalgam well with the high-speed suction (the vacuum line).
- DO NOT place extracted teeth with amalgam restorations in the red biohazard bag. They should be placed in the CONTACT AMALGAM container. Use universal precautions when handling extracted teeth (glasses, gloves, and mask).

Mercury-Free Amalgam: A Case Study

Five years ago, Dr. David Bloom, a Salem, NH dentist, began using new, plastic resins for filling his patients' cavities. Plastic resins have been under development for about ten years, and recently a practical formulation been found that adheres to both enamel and dentin of the tooth. As a result, Dr. Bloom has now completely eliminated the use of amalgam in his practice.

By using plastic resins, the generation of mercury wastes is avoided, and Dr. Bloom has ***eliminated the costs of managing and disposing of amalgam as a hazardous waste***. Furthermore, Dr. Bloom's patients prefer plastic resins because the plastic can be tinted to match the color of the tooth, making the filling invisible. More importantly, plastic resins adhere through a chemical bond to the surface of the tooth, so their application requires a much smaller size hole to be drilled in the tooth.

Amalgam Capsules



- After mixing amalgam, the empty amalgam capsules containing no visible amalgam may be disposed of in the garbage.
- Any defective capsules that cannot be emptied should be placed with the non-contact scrap amalgam so they can be recycled. Be sure to check with your amalgam recycler to see if they will take capsules with your scrap amalgam.
- Salvage and store all contact and non-contact scrap amalgam in separate, appropriately labeled, tightly closed containers.
- Recycle scrap amalgam through an amalgam recycler.

Waste Amalgam

Scrap amalgam, both contact and non-contact, should not be treated as medical waste. Amalgam that is improperly put into red biohazard bags might either be incinerated or autoclaved. If amalgam is present in waste that is incinerated, the mercury will volatilize and enter the atmosphere. The volatilized mercury then precipitates to the ground or waterbody. If amalgam is present in waste that is autoclaved, the volatilized mercury will escape from the autoclave when the door is opened, presenting an immediate health hazard to dental office staff.

- Salvage and store all waste amalgam in an air tight, closed container labeled "WASTE AMALGAM."
- Recycle waste amalgam through an amalgam recycler.
- Follow the requirements of your amalgam recycler for the storage, disinfection, and shipping of waste amalgam.
- If waste amalgam must be disinfected before shipment to your recycler, DO NOT use any method that utilizes heat. The heat will cause the mercury to volatilize and be released into the environment.
- DO NOT store waste amalgam in used radiographic fixer, because this fixer is considered hazardous waste and will result in the waste amalgam being considered a hazardous waste.
- If you store waste amalgam under water, or other liquid, DO NOT decant the liquid down the drain.

Chairside Traps

Amalgam that is rinsed down the drains or escapes from poorly maintained chairside traps and vacuum pump filters enters the wastewater stream and, eventually, the wastewater treatment plant or septic system. Any mercury contained in treated wastewater will either end up in the sewage sludge, which may be land applied (incinerated), or in liquid effluent discharged into lakes and rivers. Any mercury discharged to a septic system will eventually contaminate the groundwater.

Disposable amalgam traps are preferable to reusable traps because of the difficulty in effectively removing amalgam particles from the trap without spilling them into the drain or garbage.

Disposable and Reusable Amalgam Traps

- Be sure to check with your dental amalgam recycler to determine if they will accept disposable amalgam traps in the same container with your contact amalgam.

- When your recyclable amalgam container is full, contact your amalgam or mercury recycler for collection. Be sure you understand your recycler's requirements for packaging and acceptability.

- Change amalgam traps at least once a week, or as recommended by the manufacturer of the equipment. Turn off high volume evacuation system before changing the amalgam trap from the chair side dental unit.

- DO NOT clean reusable traps under running water or discharge the trapped amalgam into the wastewater system.

- DO NOT discharge the trapped amalgam into the sharps container, biohazard bag, or trash.

- Change the chairside amalgam traps as often as necessary.

- Flush the vacuum system with disinfecting line solution before changing the chairside trap. The best method is to flush the line at the end of the day, and then change the trap the next morning before the suction is used. This method will allow particles in the trap to dry.

Facilities that use reusable traps should avoid the discharge of visible scrap amalgam down the drain as much as possible, by removing it away from the drain, using appropriate protective equipment. Facilities should store the scrap in an airtight container, and as required by the recycler or waste hauler. Never rinse amalgam traps over the drain or discard into the trash.

Disposable Amalgam Traps

- Open the chairside dental unit to expose the amalgam trap.
- Remove the amalgam trap and place it directly into the waste amalgam recycling container. You will need to have a waste amalgam container that is large enough to accommodate the disposable chairside traps.
- If the trap is visually clean, it can be put in the trash or re-used. Visually clean traps have been determined to be non-hazardous. A heavily contaminated trap should always be recycled. Store contaminated traps in the waste amalgam container.

Reusable Amalgam Traps

- Remove non-amalgam fragments such as cement from the trap with cotton forceps and discard in the garbage. Remove all visable amalgam by tapping the contents into the container labeled "WASTE AMALGAM." Close the cover tightly.
- DO NOT clean resusable traps under running waste or discharge the trapped amalgam into the wastewater.
- DO NOT discharge the trapped amalgam into the sharps container, biohazard bag, or trash.

Cleaning the Amalgam Trap

- With gloved hand, remove the amalgam trap from the chair side dental unit.
- Place amalgam trap on the palm of the gloved hand.
- Pull the cuff of the glove over the amalgam trap and off the fingers, inverting the glove and catching the amalgam trap inside.
- Tie a knot in the glove to secure the trap.
- Dispose of the gloved amalgam trap in the amalgam collector and secure the lid firmly.

Vacuum Pump Filters

Secondary vacuum pump filters should be changed periodically in accordance with the manufacturer's recommendations (in general, once a month). Used filters may contain amalgam. If they contain amalgam, you may be able to include used filters in the same container with your recyclable amalgam. Contact your manufacturer or your recycler.

- Replace vacuum pump filters regularly as recommended by the equipment manufacturer.

- Remove the filter. While holding it over a tray or other container that can catch spills, decant as much liquid as possible without losing visible amalgam. The decanted, amalgam-free, liquid can be rinsed down the drain.

- Put the lid on the filter and place it in the box in which it was originally shipped. When the box is full, the filters should be recycled. Be sure to check with your amalgam recycler to ensure that they will take these filters.

- DO NOT dispose of the vacuum pump filters as medical waste.

Amalgam Separators

Your office may wish to consider purchasing an amalgam separator. The ability of an amalgam separator to remove amalgam from the dental wastewater may be superior to filters and traps used in chairside dental units and vacuum lines. These separator systems are used to capture scrap amalgam too fine to be removed by a trap or screen from the wastewater.

Amalgam separators are used in Europe and are currently being evaluated in selected areas of the United States.

If you decide you want to purchase an amalgam separator, be prepared to shop around for the equipment that works best for you. These separators vary widely in sophistication and effectiveness. The following criteria should help you select the right system.

- You may want to consider a unit that is "hands-off," meaning that the dentist or staff does not have to perform a series of manual operations, or be required to handle and change filters.

- The captured amalgam should be recycled. Make sure that the company, which sold you the unit, arranges for the recycling of the captured amalgam. The company needs to provide you with the appropriate information on how to recycle the captured amalgam. Keep records and receipts of all amalgam sent to recyclers, including name, date, quantity, and address of recycler.

- Simplicity of design is a plus. There will be fewer chances for something to go wrong.

- The unit should operate quietly.

- The unit should come with a "fail-safe" mechanism that protects you from a spill or back-up in the event that a blockage occurs.

- The unit should be installed centrally so that the wastewater, from all suction lines, passes through it before discharging into the sewer system.

- Obtain information from the companies on the total cost for all services, including cost of the unit over a 5-10 year period, before making a decision.

Plumbing Replacement and Repairs

After your office adopts its new amalgam management practices, it may be a good time to replace sink traps. Mercury from past practices often settles at low points such as sink traps and sumps and, because mercury may amalgamate to the metal, its removal by cleaning may be impossible. The slow dilution of the mercury in a sink trap or sump can release mercury into the wastewater for years after past disposal practices have been corrected.

- Whenever plumbing parts are removed or cleaned, caution should be taken to avoid spilling the contents in case amalgam or mercury are present.

- Pour and brush out the sludge and handle as you would handle contact amalgam.

Mercury Containing Lamps and Devices

A number of lamps and devices contain mercury, such as fluorescent and HID lamps, thermostats, thermometers, switches, and relays. This mercury poses a severe hazard to human health or the environment when improperly managed.

Waste mercury-containing lamps and devices may not be disposed of as a solid waste unless they are below regulatory limits for mercury when subjected to a toxicity test required by EPA and DES. Most fluorescent and HID lamps, and mercury containing devices, including thermostats, exceed the hazardous waste regulatory limit for mercury toxicity of 0.2 milligrams per liter and all fluorescent lamps contain mercury in spite of manufacturer "non-hazardous" claims.

If spent fluorescent bulbs are discarded into ordinary trash, they may eventually be incinerated or placed in a landfill. If they end up in a landfill, soil and/or water contamination may result. Only newer, lined landfills are outfitted with leachate collection systems. Leachate results from the normal decomposition of the garbage in landfills. The collected leachate is piped to the local publicly owned treatment works (POTW), where it can be released to the environment through ways described under "wastewater" above.

- Waste mercury-containing lamps and devices may be handled under DES's universal waste rules, adopted October 13, 2001. DES strongly recommends recycling as the preferred option and will promote the recycling and proper management of waste mercury-containing lamps and devices as Universal Wastes.

- Under the Universal Waste Rule, hazardous waste generators are not required to include universal wastes in their calculation of generator status. Universal wastes, when recycled, are also not subject to the generator fees. Handlers are not required to use a licensed hazardous waste hauler to transport universal waste and are not required to

complete a hazardous waste manifest. Universal waste generators and handlers must keep written records to track universal wastes, generally a Bill of Lading.

- "Low mercury" lamps still contain mercury and may be rejected by your solid waste facility. Recycle all lamps under Universal Waste Rules regardless of their designation.

Mercury-Containing Lamp Handling Procedures

- Store used intact lamps in the same boxes that new lamps were shipped in or other boxes of similar size, or a fiber drum.
- Ensure containers are sturdy, without holes, rips or tears.
- Ensure containers are stable (to prevent tipping over).
- Fluorescent tube lamps should be stored upright.
- Use box spacers between lamps to prevent breakage.
- Do not pack too many lamps into a container; the pressure could lead to breakage.
- Do not store too few lamps in a container unless there is enough packing material to prevent breakage.
- Do not tape lamps together. Many recycling facilities will not accept lamps which have been taped together.
- Label drums: "Handle With Care/Fragile" (in addition to identifying the contents as required by DES's policy).
- Store boxes in a designated storage location away from high traffic areas.
- Do not over stack. Stack filled boxes no wider than five across with each row perpendicular to the ones below it. Stacks should be no higher than five feet so lamps on the bottom are not crushed by the weight.
- Avoid storing cardboard boxes and drums outside where they will be exposed to moisture. Use plastic containers if lamps must be stored outside.
- Do not store lamps in a metal drum because this can lead to breakage.
- Seal boxes with tape as soon as they're filled.

Cardboard boxes and fiber drums can be ordered from a lamp recycling facility, through a catalog, or purchased from carton distributors (see "Boxes" in the Yellow Pages).

The NHDES Fact-Sheet WMD-HW-7, *"Waste Mercury-Containing Lamps: Management Requirements for Handlers and Transporters"* may be obtained by calling (603) 271-2975 or by visiting www.des.state.nh.us/factsheets/hw/hw-7.htm.

Used X-Ray Fixer Solution (Containing Silver)

Used fixer solution, left over from x-ray processing, is considered a hazardous waste because of its high silver content. The silver in used fixer should be reclaimed off-site by another company, handled by a hazardous waste management firm, or reclaimed in-house. Reclaiming the silver in used fixer conserves a valuable resource and reduces your business liability. Many relcaimers will pay to take your silver. Suitable recycling methods for used fixer include:

- Used fixer can be self-transported by a dentist to a silver reclamation facility that is licensed to accept hazardous waste, or shipped by a hazardous waste hauler for disposal.

- Purchase your own silver recovery unit. Before purchase, check with your local publicly owned treatment works (POTW) to ensure that the level of silver removal meets the POTW's discharge standards. If it does, you may rinse the recovery process waste down the drain.

- DO NOT wash the liquid that has gone through the silver recovery process down the drain if your dental office is on a septic system. Silver-bearing wastes, including x-ray fixer, should not be discarded to the sewer unless they are first treated in a proper silver recovery system. Otherwise, fixer should be taken off-site for treatment and disposal.

X-Ray Developer

- Check with your POTW to determine if x-ray developer can be flushed down the drain.

- DO NOT mix x-ray developer and used x-ray fixer. The silver-laden used x-ray fixer is considered hazardous waste and cannot be flushed down the drain. Developer solutions may only be discharged to the sewer if it has not been mixed with fixer.

- Dentists who are not connected to a sewer system should have their developer removed by a hazardous waste hauler for proper disposal.

Lead Foils, Shields, & Aprons

Lead foils, shields, and aprons are considered hazardous waste unless they are recycled for their scrap metal content. If the material is recycled, it must go to a licensed recycling facility and records and receipts must be kept. Companies that recycle amalgam or fixer may also accept lead waste. Remember to get documentation from the company handling your lead waste confirming that the waste has been disposed of properly.

- Dispose of lead foils, shields, and aprons through a hazardous waste hauler.

- Store all spent lead-acid batteries on an acid-resistant surface, under cover, away from flammable liquids, ignition sources, and drains.

- DO NOT put the lead foil that shields x-ray film, protective lead shields, and lead aprons into the trash or into biohazard bags. The lead content of these makes them hazardous waste.

Chemiclave/Chemical Sterilant Solutions

Spent chemiclave solution is the liquid left over from the chemical sterilization of dental instruments. This used solution is an ignitable waste because it contains more than 24% alcohol and has a flashpoint below 140F.

- Dilute the spent chemiclave solution with at least 4 parts of water (4 parts water to one part chemiclave solution) or more before discharging down the drain.

- DO NOT wash the chemiclave solution down the drain undiluted, or put in the garbage.

Disinfectants, Cleaners, and other Chemicals

Alcohols, ethers, and peroxides are considered ignitable and must not be discarded down the drain because they could explode. These materials are considered to be hazardous waste. Unused products should be disposed of through a hazardous waste hauler.

- Follow the label directions on the product container for guidance on the proper handling and disposal of used disinfectants and cleaners, along with the residue remaining in the product containers.

- Recycle the empty container through your local program or dispose of it in the trash.

- DO NOT put a cleaning solution, disinfectant or any other waste into a septic system, regardless of its concentration. It may disrupt the proper functioning of the septic system.

- Alcohols, ethers, and peroxides are considered ignitable and must not be discarded down the drain. These materials are considered to be hazardous waste.

- DO NOT put an undiluted cleaning solution, disinfectant or any other process chemical into a septic system.

Section III
Other Wastes

Blood

Swabs or dressings that are bloody and dripping may be disposed if with the normal refuse if you generate less than 50 lbs per month. Otherwise, this material needs to be treated as biomedical waste.

Sharps

Needles, scalpels, reamers, broaches, and other sharp objects that could cause a punture wound should NOT be placed in the garbage EVEN IF THEY ARE STERILIZED. This type of waste should be placed in a puncture-proof container. Disposal should be through a biomedical waste service.

Office Waste

Although office waste is usually not hazardous, we wish to remind you that aluminum, glass, newspaper, corrugated cardboard, and office paper can easily be recycled through your garbage hauler or recycling center.

Computer Waste

In the past, computers have often ended up at the landfill or the incinerator, where they diminish valuable landfill capacity and create the potential for releasing harmful constituents to the environment through leachate and emissions. The cathode ray tubes (CRTs) in monitors and televisions contain 5-8 lbs of lead in the tube and computer components in general contain a significant, and diverse, number of materials, such as mercury and plastics, many of which are not easily recycled.

Consumers invariably will replace their old equipment with new purchases, even if there is no real need to replace the unit. The cost of these items is at an all time low and the economy relatively good; both factors tend to create greater wastes regardless of the material. Since an estimated ½ to 2/3 of obsolete units are still in storage, people will gradually move them out as their values diminish. It is easy to see why our local transfer station will see more electronics coming through the door.

- Consider upgrading and reusing perfectly good parts as opposed to new purchases.

- Review your electronics vendor. Contact DES to assess their permit status (if needed) and check their compliance status (603) 271-2925. Secondly, know and approve of the final destination of these materials. Since low costs may mean the units are exported, ensure that the destination is one of recycling.

- Do not break CRTs to reduce volume. They're under intense pressure and injury could easily follow. A typical monitor (from a computer or TV) may weigh at least 70 lbs and occupy significant space in your municipal facility. Indeed, the very bulk of these items have created problems for municipal employees due to back strain and injuries due to dropping.

- If the transfer facility receives units that are "higher end" (usually pentium class) and in good shape, consider donations such as the Governor's "Computers in School Program" (271-1098), local churches and non-profits organizations.

There are numerous vendor lists available. Contact DES at 271-1749 for more information or visit the website at www.des.state.nh.us. Finally, EPA published a great report titled "Analysis of Five Community Consumer/Residential Collections of End of Life Electronic and Electrical Equipment". Visit their web site at www.epa.gov/region01/programs to download a copy.

Other Helpful Links:

Need more information on computers? Try these resources for background and vendors. This list is evolving so check back regularly or even send your suggestions to cway@des.state.nh.us. None of the links suggested constitute an endorsement by the DES.

List of Appendices

I. Dental Amalgam Recycling Facilities
II. New Hampshire Resources for Information & Assistance
III. Amalgam Separator Costs & Technology Vendors
IV. Bibliography

Dental Amalgam Recycling Facilities
Northeast Region

Company Information	Type of Waste Accepted
Advanced Environmental Recycling Co. (AERC) 2591 Mitchell Ave Allentown, PA 18103 1-800-554-2372 www.aerc-mti.com/	Amalgams, Lamps, Batteries, Other
Bethlehem Apparatus Co. Inc. Resource Recovery and Recycling Division 890 Front Street, PO Box Y Hallertown, PA 18055 610-838-7034 610-838-6333 Fax	Amalgams, Lamps, Batteries, Other
Clean Harbors, Inc. Braintree MA 781-849-1800 www.cleanharbors.com/	Amalgams, Lamps, Batteries, Other
Dental Recycling North America, Inc. Po Box 1069 Hackensack, NJ 07601 1-800-525-3793 www.drn.com	Amalgams
Dorell Refinery 533 Atlantic Ave Freeport, NY 11520 1-800-645-2794	Amalgams
EnviroChem 21821 Industrial Blvd Rogers, MN 55374 612-428-4002	Amalgams
Garfield Refining 810 E. Cayuga Philadelphia, PA 19124-3892 1-800-523-0968x300	Amalgams
Global Recycling Technologies, Inc. 218 Canton Street Stoughton, MA 02072 781-341-6080 www.grtonline.com	Amalgams
Recyclights 401 W. 86th Street Bloomington, MN 55420-2707 1-800-831-2852 www.recyclights.com	Amalgams, Lamps, Batteries, Other
Safety Kleen 221 Sutton Street North Andover, MA 978-685-2121	Amalgams, Lamps, Batteries, Other
Superior Special Services PO Box 556 Port Washington, WI 53074-0556 1-800-556-5267	Amalgams, Lamps, Batteries, Other

This is not a complete list of all recycling facilities available, nor does it imply endorsement from the New Hampshire Department of Environmental Services. May 2001

New Hampshire Resources for Information & Assistance

New Hampshire Pollution Prevention Program
New Hampshire Department of Environmental Services
Waste Management Bureau
6 Hazen Drive
Concord, NH 03301
Phone: 1(800) 273-9469 or (603) 271-6460 Fax: (603) 271-2456
E-mail: nhppp@des.state.nh.us Website: http://www.des.state.nh.us/nhppp

Provides confidential, non-regulatory multi-media waste reduction assistance for businesses, maintains an in-house pollution prevention technology library, and serves as a clearinghouse for researching waste reduction information.

New Hampshire Dental Society
23 South State Street, PO Box 2229
Concord, NH 03302-2229
Phone: (603) 225-5961 Fax: (603) 226-4880
E-mail: nhds@nhdental.com Website: http://www.nhdental.com/

The purpose of the New Hampshire Dental Society is to assist its members in providing and promoting the highest levels of oral health care for the citizens they serve, to disseminate knowledge pertaining to the advancement of health. As an organized body, the New Hampshire Dental Society encourages its individual members to be collectively effective with the issues that confront them and serves as an advocate for the advancement of the profession.

New Hampshire Small Business Development Center
Sylvia Trotter Hall
Rivier College
420 Main Street
Nashua, NH 03060
Andrea O'Brien
Phone: (603) 897-8484
E-mail: aob@cisunix.unh.edu

Small Business Technical Assistance Program
New Hampshire Department of Environmental Services
Air Resources Division
6 Hazen Drive
Concord, NH 03301
Rudy Cartier (Ombudsman)
Phone: 1(800) 837-0656 or (603) 271-1379 Fax: (603) 271-1381
E-mail: rcartier@des.state.nh.us or stap@des.state.nh.us

Clean Air Act compliance and technical assistance. Features Small Business Ombudsman, regulatory research, site visits, and permitting assistance.

New Hampshire Source Reduction and Recycling Program
New Hampshire Department of Environmental Services
Waste Management Bureau
6 Hazen Drive
Concord, NH 03301
Mark Morgan
Phone: (603) 271-3712 Fax: (603) 271-2456
E-mail: mmorgan@des.state.nh.us Webpage: http://www.des.state.nh.us/pcas/

Assistance for municipalities for solid waste reduction and recycling. Features solid waste tracking policy information and workshops.

OSHA Consultation Program
New Hampshire Department of Health and Human Services
6 Hazen Drive
Concord, NH 03301
Theresa Ferrara/Brenda Clark
Phone: (603) 271-4676 Fax: (603) 271-2667
E-mail: tferrara@dhhs.state.nh.us bclark@dhhs@state.nh.us
Website: http://www.dhhs.state.nh.us/

Provides free assistance for business with less than 150 employees. Helps businesses determine/correct workplace hazards and works to create programs to ensure a safe and healthy workplace.

WasteCap Resource Conservation Network (ReCoN) of New Hampshire
122 N. Main Street
Concord, NH 03301
Barbara Bernstein
Phone: (603) 224-5388 Fax: (603) 224-2872
E-mail: recoinfo@wastecapnh.org Website: http://www.wastecapnh.org

Helps businesses save money and conserve natural resources by providing free, confidential assistance in reducing solid waste, conserving energy and water, and preventing pollution.

New Hampshire Industrial Pre-Treatment Program
New Hampshire Department of Environmental Services
6 Hazen Drive
Concord, NH 03301
George Carlson
Phone: (603) 271-2052 Fax: (603) 271-4128
E-mail: gcarlson@des.state.nh.us

Wastewater and water pollution assistance program for businesses. Features regulatory and pollution prevention assistance and site visits.

Amalgam Separator Costs & Technology Vendors

Chairside	Vendor	Purchase	Install	Maintenance	Monthly Fee
Trap	DRNA	$125	$50	$20	$10
Filter & Trap	Avprox	$225	$50	$20	$30
Central Vacuum	**Vendor**	**Purchase**	**Install**	**Maintenance**	**Monthly Fee**
Settlement	DRNA	N/A	$250	$20	$100
Settlement	Rebec 2000	$1,895	$250	$20	$30
Filters	Avprox	$225	$50	$20	$30
Ion Capture (Gravity)	DRNA	N/A	$250	$20	$150
Ion Capture (Gravity)	Rebec 2000 Gold	$2,495	$250	$20	$60
Ion Capture (Gravity)	Solmetex Hg5	$595	$300	$20	$50
Ion Capture (Pumped)	Solmetex Hg10	$6,500	$1,300	$40	$100
Ion Capture (Pumped)	Solmotex Hg20	$7,500	$1,500	$40	$100

This is not a complete list of all recycling facilities available, nor does it imply endorsement from the New Hampshire Department of Environmental Services. December 2001

Note: Costs are approximate. Contact vendors for site-specific quotes.

Avprox
2201 4th St. North Suite C
St. Petersburg, FL 33704
(727) 823-6609

DRNA
PO Box 1069
Hackensack, NJ 07601
(800) 360-1001

Rebec
PO Box 1069
Hackensack, NJ 07601
(800) 360-1001

Solmetex
29 Cook Street
Billerica, MA 01821
(978) 262-9890

Bibliography

The following documents were used in the development of this booklet:

- *Dentistry and the Environment*, Massachusetts Waste Resources Authority, January 1998.

- *The Environmental Guide for Dentistry*, Maine Department of Environmental Protection, April 2000.

- *The Environmentally Responsible Dental Office: A Guide to Proper Waste Management in Dental Offices*, Northeast Natural Resouce Center of the National Wildlife Federation and the Vermont State Dental Society, June 1999.